Tuberculosis in Ontario 1981

Prepared from the
Ontario Tuberculosis Register

Ontario

Ministry of
Health

TABLE OF CONTENTS

	Page
INTRODUCTION	1
TUBERCULOSIS MORBIDITY	2 - 7
Table 1 Age-Specific Morbidity for Males and Females - Active Tuberculosis - Ontario 1981	4
Figure 1 Tuberculosis Morbidity by Age and Sex Ontario 1977 - 1981	5
Table 1A Tuberculosis Morbidity Rates for Males and Females, Ontario 1977 - 1981	6
SITE AND TYPE OF DISEASE	8 - 11
Table 2 Site and Type of Disease - Active Tuberculosis - Ontario 1977 - 1981	8
Table 2A Site and Type of Disease - Active Tuberculosis - Ontario 1977 - 1871	10
BACTERIOLOGICAL STATUS	12 - 15
Table 3 Bacteriological Status - Active Tuberculosis - Ontario 1981	12
Table 3A Bacteriological Status - Active Tuberculosis - Ontario 1977 - 1981	14
POST-PRIMARY RESPIRATORY TUBERCULOSIS	16 - 17
Table 4 Extent of Disease - Post-Primary Respiratory Tuberculosis - Ontario 1977 - 1981	16
REACTIVATED TUBERCULOSIS	18 - 21
Table 5 Reactivated Tuberculosis - Ontario 1981	18
Table 5A Reactivated Tuberculosis - Ontario 1977 - 1981 Reactivated Tuberculosis as Percentage of Total Cases	18
Table 6 Length of Inactive Interval Reactivated Tuberculosis - Ontario 1977 - 1981	20

TABLE OF CONTENTS, CONTINUED :

		Page
PREVIOUS X-RAY APPEARANCE		22 - 23
Table 6A	Previous X-Ray Appearance - Ontario 1981	22
TUBERCULOSIS MORBIDITY IN THE MAIN POPULATION GROUPS		24 - 29
Table 7	Tuberculosis Morbidity Among Canadian and Foreign-Born - Active Tuberculosis - Ontario 1981	24
Table 7A	Site and Type of Disease Among Canadian and Foreign-Born - Active Tuberculosis - Ontario 1981	26
Table 8	Country of Birth and Year of Arrival in Canada - Foreign-Born Cases of Active Tuberculosis - Ontario 1981	28
THE DETECTION OF TUBERCULOSIS		30 - 33
Table 9	Method of Detection - Active Tuberculosis - Ontario 1981	30
Table 9A	Method of Detection by Type and Extent of Disease - Active Respiratory Tuberculosis - Ontario 1981	32
Table 9B	Reason for Detection by Type and Extent of Disease - Active Respiratory Tuberculosis - Ontario 1981	32
TUBERCULOSIS MORBIDITY IN THE VARIOUS AREAS OF ONTARIO		34 - 43
Table 10	Morbidity Rates for Province and Rate by Regions, Counties and Districts per 100,000 - Active Tuberculosis - Ontario 1977 - 1981	34 - 36
Table 11	Active Tuberculosis in the Major Ontario Cities - Active Cases and Rates per 100,000 - 1977 - 1981	38
Table 11A	Active Tuberculosis in Metropolitan Toronto - 1981	40

TABLE OF CONTENTS, CONTINUED:

		Page
Table 11B	Tuberculosis in Metropolitan Toronto - Active Case Rates per 100,000 1977 - 1981	41
Table 12	Active Tuberculosis in Principal Cities of Ontario 1977 - 1981	42
NOTIFICATION OF ACTIVE TUBERCULOSIS		44 - 45
Table 13	Notified Cases by Counties - Active Tuberculosis - Ontario 1977 - 1981	44
OCCUPATION OF PERSONS WITH ACTIVE DISEASE		46 - 49
Table 14	Active Tuberculosis by Occupation in Ontario 1981	46
Table 14A	Active Tuberculosis by Occupation - Health Care Personnel - Ontario 1980 and 1981	48
TUBERCULOSIS MORTALITY		50 - 53
Table 15	Deaths Attributed to Tuberculosis - Ontario 1981	50
Figure 2	Trend in Tuberculosis Mortality Ontario 1900 - 2000	53
MANAGEMENT OF TUBERCULOSIS		54 - 57
Table 16	Initial Management of Tuberculosis Active Cases - Ontario 1981	54
Table 16A	Percentage of Cases on whom Treatment was Initiated	55
Table 17	Chemotherapy in Ontario since 1963 - Outpatients on Treatment and Preventive Chemotherapy	56
APPENDIX I		
	BOVINE TUBERCULOSIS - ONTARIO 1981 ...	59

Public Health Branch
Disease Control & Epidemiology Service,
Ministry of Health,
15 Overlea Boulevard, 5th Floor,
Toronto, Ontario.
M4H 1A9

Telephone:416-963-2238

INTRODUCTION

"Tuberculosis in Ontario - 1981" was prepared from the Ontario Tuberculosis Case Register by the Programme Evaluation Section of the Chest Disease Service. Data processing was carried out by the Information Systems Division.

The Case Register started in the Fall of 1959 and since that date has recorded, annually, all known new and reactivated cases of tuberculosis in the Province. Information concerning each case is derived from notifications - as required by Section 64 and Regulation 703 of the Public Health Act. In addition, laboratory reports, Hospitals for Chest Diseases admission and discharge notices, outpatient treatment reports and notification of deaths (from the Registrar General) furnish valuable information, at times predating the official Notification of Tuberculosis.

In this report, "Tuberculosis in Ontario - 1981", the epidemiology of the disease is presented. Comparisons are made with previous years to show trends which in turn may be used to evaluate existing programmes in specific geographic areas.

TUBERCULOSIS MORBIDITY IN ONTARIO

1977 - 1981

YEAR	NUMBER OF CASES	RATE PER 100,000
1977	0944	11.3
1978	0817	9.7
1979	0779	9.2
1980	0949	11.1
1981	0795	9.2

TUBERCULOSIS MORBIDITY 1981

For the calendar year, 1981, there were 795 registered cases of active tuberculosis in Ontario. Of these, 69 (8.7%) were classified as reactivations, having a documented history of previous active disease; the remaining 726 cases were classified as new active.

The morbidity rate, for the 8,625,105 population at risk in Ontario, was 9.2/100,000. New active disease incidence was 8.4/100,000, reactivations 0.8/100,000.

These figures represent a 16.2% decrease in the number of cases reported for 1980 (949) and a consequent 17.1% drop in the morbidity rate (11.1/100,000) from 1980.

As can be seen from the table opposite, the figure for 1980 represented a rise in the morbidity rates. The rate for 1981 returned to the 1979 level.

It can now be seen that much of the rise in 1980 was due to the large number of Southeast Asian refugees with active tuberculosis in 1980 (193); without these refugees the 1980 rate would have been 8.9/100,000, since they accounted for 19.3% of the 1980 case load.

Among the 1981 cases were 105 refugees (13.2% of the case load). Without them, the 1981 rate would have been 8.0/100,000. It will be noted that the number of refugee cases fell by 79, showing a decrease of 41.6%.

However encouraging these figures are, the need for adequate follow-up of all cases, to ensure chemotherapy is maintained as prescribed for the full period allotted, cannot be stressed too strongly.

TABLE 1

AGE-SPECIFIC MORBIDITY FOR MALES AND FEMALES

ACTIVE TUBERCULOSIS - ONTARIO 1981

AGE GROUP	MALES			FEMALES			TOTAL		
	NUMBER WITH ACTIVE TUBERCULOSIS	POPULATION* AT RISK	RATE PER 100,000	NUMBER WITH ACTIVE TUBERCULOSIS	POPULATION* AT RISK	RATE PER 100,000	NUMBER WITH ACTIVE TUBERCULOSIS	POPULATION* AT RISK	RATE PER 100,000
0 - 4	9	303,730	3.0	4	289,300	1.4	13	593,030	2.2
5 - 9	4	317,335	1.3	2	299,955	0.7	6	617,290	1.0
10 - 14	7	346,655	2.0	1	329,690	0.3	8	676,345	1.2
15 - 19	11	413,355	2.7	12	395,515	3.0	23	808,870	2.8
20 - 24	50	392,660	12.7	32	397,030	8.1	82	789,690	10.4
25 - 34	77	715,885	10.8	73	740,375	9.9	150	1,456,260	10.3
35 - 44	55	538,705	10.2	38	534,460	7.1	93	1,073,165	8.7
45 - 54	70	472,040	14.8	44	464,895	9.5	114	936,935	12.2
55 - 64	70	384,535	18.2	46	420,790	10.9	116	805,325	14.4
65 - 69	30	141,140	21.3	24	164,360	14.6	54	305,500	17.7
70+	69	220,750	31.3	67	341,945	19.6	136	562,695	24.2
NOT KNOWN	0	-	-	0	-	-	0	-	-
TOTAL	452	4,246,790	10.6	343	4,378,315	7.8	795	8,625,105	9.2
PERCENTAGE	56.9			43.1			100.0		

* POPULATION ESTIMATES FOR 1981 PROVIDED BY ONT. MINISTRY OF TREASURY AND ECONOMICS

FIGURE 1

TUBERCULOSIS MORBIDITY BY AGE AND SEX

ONTARIO 1977-1981

(Rates per 100,000 Population)

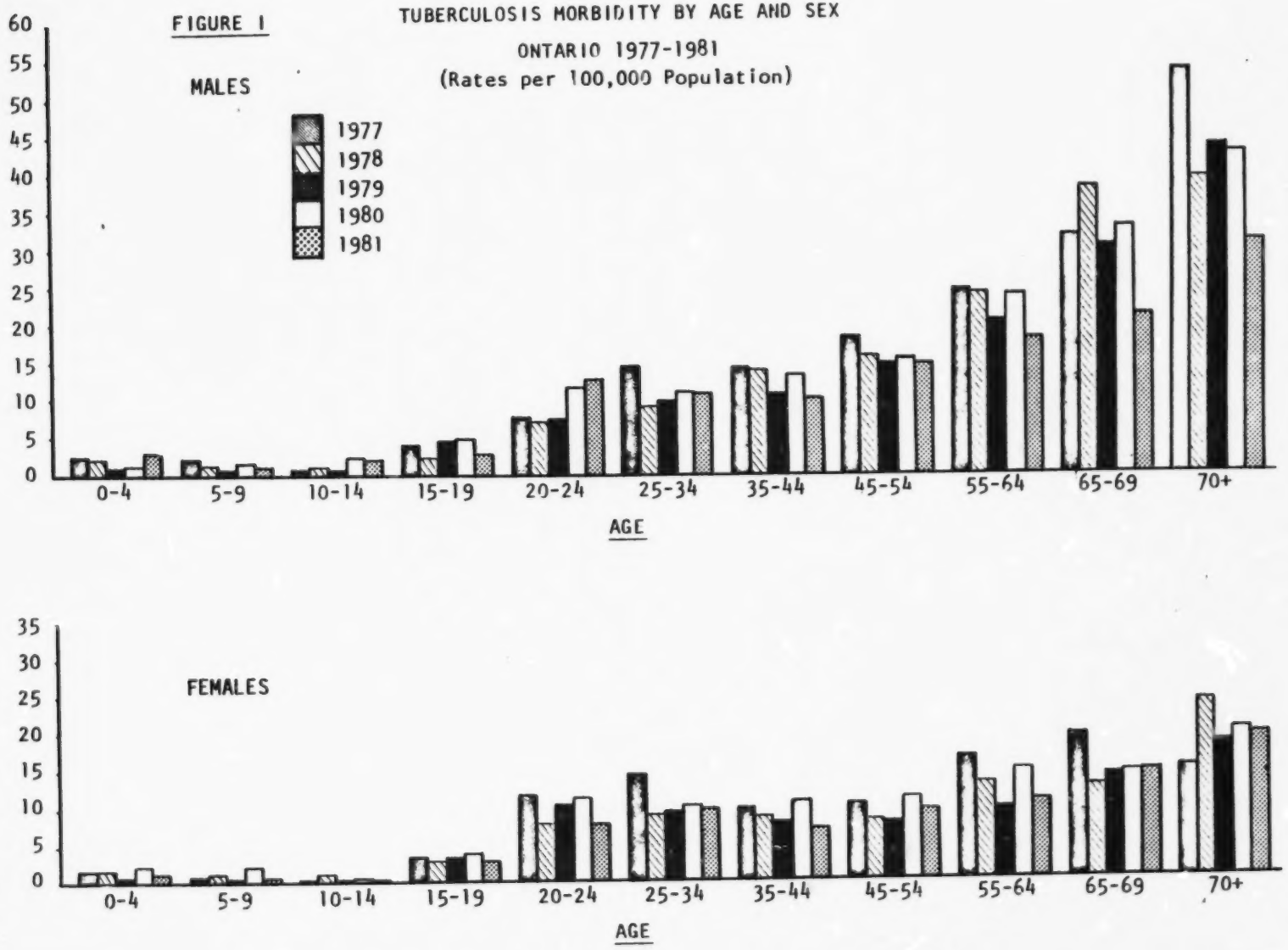

TABLE 1A

TUBERCULOSIS MORBIDITY RATES FOR MALES AND FEMALES

ONTARIO 1977 - 1981

YEAR	AGE GROUP 0 - 24		AGE GROUP 25+	
	M	F	M	F
1977	3.5	3.8	21.1	13.6
1978	2.9	3.2	17.9	11.5
1979	3.0	3.4	16.7	10.4
1980	4.7	4.5	18.4	12.9
1981	4.6	3.0	15.0	10.9

AGE AND SEX DISTRIBUTION

The age and sex distribution of the 795 active cases and the age-specific morbidity rates for males and females are shown in Table 1. The 1981 morbidity rates are compared with those of preceding years in Figure 1 and Table 1A.

The overall male morbidity rate had decreased by 15.9%. The female rate also decreased by 18.8%.

Males contributed 56.9% to the total active cases, an increase of 1.1% from 1980, the male/female ratio being 1.3:1.

The 132 cases reported under age 25 consisted of 81 males and 51 females. The male and female morbidity rates were, therefore, 4.6 and 3.0/100,000 population respectively.

The rates for males in the older age groups continue to be significantly higher than the rates for females. Of the 663 cases occurring in persons 25 years of age and over, 371 were male and 292 female, giving respective morbidity rates of 15.0 and 10.9/100,000 population.

TABLE 2

SITE AND TYPE OF DISEASE

ACTIVE TUBERCULOSIS - ONTARIO 1981

RESPIRATORY TUBERCULOSIS

DIAGNOSIS	NUMBER	PERCENT OF RESPIRATORY CASES	PERCENT OF ALL CASES
POST-PRIMARY TOTAL	528	87.9	66.4
1.FAR ADVANCED	62	10.3	7.8
2.MODERATELY ADVANCED	177	29.5	22.3
3.MINIM.& EXT.UNSPEC.	289	48.1	36.4
PRIMARY	18	3.0	2.3
MILIARY	8	1.3	1.0
PLEURISY	39	6.5	4.9
OTHER RESPIRATORY	8	1.3	1.0
TOTAL	601	100.0	75.6

NON-RESPIRATORY TUBERCULOSIS

DIAGNOSIS	NUMBER	PERCENT OF NON-RESPIRATORY CASES	PERCENT OF ALL CASES
GENITO-URINARY	43	22.2	5.4
LYMPH GLAND	100	51.5	12.6
BONE & JOINT	23	11.9	2.9
CENTRAL NERVOUS SYSTEM (MENINGITIS)	6	3.1	0.8
ALIMENTARY	8	4.1	1.0
SKIN	9	4.6	1.1
OTHER ORGANS	5	2.6	0.6
TOTAL	194	100.0	24.4

SITE AND TYPE OF DISEASE

Table 2 shows the breakdown, according to site and type of disease, for the 795 cases registered in 1981. There were 601 (75.6%) respiratory cases and 194 (24.4%) non-respiratory cases.

Post-Primary Tuberculosis, acknowledged to be the greatest potential source of infection, is of paramount importance to public health. This type of disease accounted for 528 (87.9%) of the respiratory cases, 66.4% of the total cases. Reactivation of previously diagnosed tuberculosis was defined in 54 (10.2%) of the post-primary cases; the remaining 474 (89.8%) were considered new active cases. This represents only a slight change from 1980 when 89.2% of the post primary cases were new active, 10.8% reactivations. Of the post-primary reactivations in 1981, 61.1% were male; of the new active disease, 63.3% were male. Distinguished by age groups, 14.8% of reactivations and 44.9% of new active cases occurred in the under-45 age group.

Primary Tuberculosis showed a 47.1% decrease from 34 (3.6%) in 1980 to 18 (2.3%) in 1981.

The under-five age group accounted for 55.6% of these cases, 38.9% occurred in the five - 19 year age group; one individual in the 20 - 24 year group represented the remaining 5.6%.

Miliary Tuberculosis was found in eight cases, 1.3% of total respiratory. There were eight new active cases (two males, six females) and no reactivations.

TABLE 2A

SITE AND TYPE OF DISEASE

ACTIVE TUBERCULOSIS - ONTARIO 1977 - 1981

		1977	1978	1979	1980	1981
RESPIRATORY						
POST-PRIMARY		628	538	523	651	528
PRIMARY		24	21	14	34	18
MILIARY		7	23	13	9	8
PLEURISY		50	40	33	39	39
OTHER		13	4	6	13	8
	NUMBER	722	626	589	746	601
TOTAL	PERCENT	76.5	76.6	75.6	78.6	75.6
NON-RESPIRATORY						
GENITO-URINARY		75	60	72	60	43
LYMPH GLAND		92	83	74	83	100
BONE AND JOINT		20	18	15	24	23
CENT.NERV.SYST.		9	7	9	9	6
OTHER		26	23	20	27	22
	NUMBER	222	191	190	203	194
TOTAL	PERCENT	23.5	23.4	24.4	21.4	24.4
	NUMBER	944	817	779	949	795
ALL CASES	PERCENT	100.0	100.0	100.0	100.0	100.0

Pleurisy (39 cases) predominated in males (24 males, 15 females.) In all but one instance, the pleural effusions were reported to be new active disease; 23 (59.0%) cases were under 45 years of age.

Non-Respiratory Tuberculosis (194 cases) showed a 4.4% decrease in 1981 from 1980, when the corresponding number of cases was 203.

Genito-Urinary disease showed a decrease of 28.3%. There were 43 cases, representing 22.2% of the total non-respiratory cases, as compared with 60 cases, 29.6% of total non-respiratory cases, in 1980. Reactivations accounted for 2 (4.7%) of the cases. 13 (34.2%) of the new cases were less than 45 years of age. The number of cases in both males and females decreased. The number of males fell from 31 in 1980 to 20 in 1981, while females accounted for 29 cases in 1980 and 23 in 1981.

Lymphadenitis - There were 100 cases, representing 51.5% of the total non-respiratory tuberculosis (an increase of 20.5% over 1980.) Females continued to outnumber males, contributing 65 (65%) of the cases. Reactivations accounted for 4% of the cases; 72% of new cases occurred in the under-45 age groups.

Bone and Joint Tuberculosis accounted for 23 cases, 10 males and 13 females, representing 11.9% of the total non-respiratory tuberculosis. Of the new cases, 4 (23.5%) occurred in persons under 45 years of age. 6 cases (26.1%) were reactivations. The 23 cases represented a 4.2% decrease from 24 cases reported in 1980.

Other - The non-respiratory cases included 1 11 year old Vietnamese male (d.o.b. 20.11.69) who arrived in Canada in 1980 and developed tuberculosis of the skin of the sole of his foot, diagnosed by positive smear and culture from biopsy in March 1981, and treated with Isoniazid and Rifampin.

TABLE 3

BACTERIOLOGICAL STATUS

ACTIVE TUBERCULOSIS - ONTARIO 1981

DIAGNOSIS	BACILLARY ON SMEAR		BACILLARY + ON CULTURE		NON-BACILLARY*		TOTAL	
	NO.	%	NO.	%	NO.	%	NO.	%
FAR ADVANCED	52	83.9	1	1.6	9	14.5	62	100.0
MODERATELY ADVANCED	128	72.3	12	6.8	37	20.9	177	100.0
MINIM.& EXTENT UNSPEC.	116	40.1	65	22.5	108	37.4	289	100.0
PRIMARY	3	16.7	3	16.7	12	66.7	18	100.0
MILIARY	5	62.5	-	-	3	37.5	8	100.0
PLEURISY	16	41.0	8	20.5	15	38.5	39	100.0
OTHER RESPIRATORY	2	25.0	3	37.5	3	37.5	8	100.0
NON-RESPIRATORY	107	55.2	49	25.3	38	19.6	194	100.0
TOTAL	429	54.0	141	17.7	225	28.3	795	100.0

* SMEAR NEGATIVE OR NOT REPORTED

+ *smear negative - culture positive*

BACTERIOLOGICAL STATUS

The bacteriological findings in the 795 active cases for 1981 are outlined in Table 3.

In 70.8% (374) of the total (528) post-primary cases, bacilli were identified on smear and culture, culture or guinea pig inoculation only. Positive bacteriology varied directly with the extent of disease. 85.5% of far advanced cases, 79.1% of moderately advanced cases and 62.6% of minimal and extent unspecified were confirmed bacteriologically.

Primary disease is recognized to be of low infectivity. However, bacillary proof was reported in 33.3% of cases as compared with 47.1% in 1980.

Bacteriologic confirmation of the diagnosis of tuberculous pleural effusion was forthcoming in 61.5% of the reported cases.

Comparison of the bacteriological status of active disease in the past five years is portrayed in Table 3A overleaf.

The percentage of cases confirmed bacteriologically shows an 8.3% spread over the five-year period.

TABLE 3A

BACTERIOLOGICAL STATUS

ACTIVE TUBERCULOSIS - ONTARIO 1977 - 1981

DIAGNOSIS	PERCENTAGE BACILLARY (SMEAR AND/OR CULTURE)				
	1977	1978	1979	1980	1981
FAR ADVANCED	94.6	90.3	89.3	82.7	85.5
MODERATELY ADVANCED	80.9	75.5	81.9	72.5	79.1
MINIM.& EXTENT UNSPEC	65.5	62.1	64.6	49.1	62.6
PRIMARY	33.3	28.6	50.0	47.1	33.3
MILIARY	85.7	82.6	0.0	77.8	62.5
PLEURISY	48.0	50.0	57.6	38.5	61.5
OTHER RESPIRATORY	84.6	50.0	83.3	76.9	62.5
NON-RESPIRATORY	73.0	72.8	75.1	83.7	80.4
TOTAL	72.1	69.6	73.4	65.1	71.7

The growth of organisms, identified as M.tuberculosis from clinical specimens is essential for the definitive diagnosis of tuberculosis. In a varying porportion of cases in whom the diagnosis of tuberculosis is not significantly in doubt and in whom anti-tuberculous chemotherapy results in resolution of the disease, the organisms are never isolated on culture. In some of these, microscopic examination is also negative ; in others specimens show acid fast and/or fluorescent bacilli on smear but are culture negative. In these cases, particularly when smear negative or when only one positive smear report is obtained and cannot be repeated, the validity of a diagnosis of active disease due to M.tuberculosis hominis may be questioned.

Atypical mycobacteria are being identified with increasing frequency from specimens - of sputum, urine, lymph-glands, etc. - submitted for bacteriological study. Since many strains of mycobacteria are ubiquitous in the environment and many do not or only rarely cause disease in humans, the finding of these organisms in human specimens is frequently not of significance. Some, however, are pathogenic to man and cause disease in varying sites, including the lungs where there is a striking similarity to disease caused by M.tuberculosis. Since disease due to non-tuberculous mycobacteria is not notifiable, statistical information relating to it is not available.

TABLE 4

EXTENT OF DISEASE - POST-PRIMARY (ADULT-TYPE) RESPIRATORY TUBERCULOSIS

ONTARIO 1977 - 1981

DIAGNOSIS		1977	1978	1979	1980	1981
FAR ADVANCED	NUMBER	74	72	56	75	62
	PERCENT	11.8	13.4	10.7	11.5	11.7
MODERATELY ADVANCED	NUMBER	241	209	193	236	177
	PERCENT	38.4	38.8	36.9	36.3	33.5
MINIMAL & EXTENT UNSPECIFIED	NUMBER	313	257	274	340	289
	PERCENT	49.8	47.8	52.4	52.2	54.7
TOTAL	NUMBER	628	538	523	651	528
	PERCENT	100.0	100.0	100.0	100.0	100.0

POST-PRIMARY RESPIRATORY TUBERCULOSIS
EXTENT OF DISEASE

Table 4 shows the extent of disease in the 528 cases of adult-type (post-primary) respiratory disease for 1981 and similar tabulation for the preceding four years.

Males accounted for 74.2% of the far advanced, 62.5% of the moderately advanced and 60.9% of the minimal and extent unspecified cases in 1981.

The more advanced the extent of disease, the more advanced is the age of the patient. 82.3% of far advanced disease occurred in persons 45 years and over in 1981.

Similarly, the more advanced the extent of the disease, the higher is the percentage of reactivations: in 1981, 19.4% of far advanced cases were reactivations, as against 10.2% of moderately advanced and 8.3% of minimal and extent unspecified.

TABLE 5

REACTIVATED TUBERCULOSIS

ONTARIO 1981

	TOTAL		REACTIVATION		NEW ACTIVE	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
MALES	452	100.0	42	9.3	410	90.7
FEMALES	343	100.0	27	7.9	316	92.1
TOTAL	795	100.0	69	8.7	726	91.3

TABLE 5A

REACTIVATED TUBERCULOSIS - ONTARIO 1977 - 1981

REACTIVATED TUBERCULOSIS AS PERCENTAGE OF TOTAL CASES

	1977	1978	1979	1980	1981
MALES	11.3	15.0	10.6	11.0	9.3
FEMALES	12.6	11.6	11.4	9.4	7.9
TOTAL	11.9	13.6	10.9	10.3	8.7

REACTIVATION OF TUBERCULOSIS

Reactivation, defined as disease occurring in a patient with a documented history of previous active disease, was noted in 69 of the 795 cases (8.7%), giving a rate of 0.8/100,000, a decrease of 27.3% from 1980 (Table 5).

Of the total respiratory cases, 9.2% were reactivations. In genitourinary disease 4.7% were reactivations, in lymphadenitis 4%, and in bone and joint 26.1%.

Table 5A outlines reactivations expressed as percentages of the total cases, for the past five years.

TABLE 6

LENGTH OF INACTIVE INTERVAL

REACTIVATED TUBERCULOSIS - ONTARIO 1977 - 1981

LENGTH OF INACTIVE INTERVAL	PERCENTAGE OF REACTIVATED CASES					
	1977	1978	1979	1980	1981 PERCENT	1981 NUMBER*
UNDER 1 YEAR	0.9	0.0	0.0	0.0	0.0	0
1 YEAR	3.6	0.0	0.0	0.0	0.0	0
2 YEARS	8.0	8.1	4.7	6.2	7.2	5
3 YEARS	8.9	0.9	4.7	3.1	1.4	1
4 YEARS	6.3	4.5	3.5	2.1	1.4	1
5 - 7 YEARS	8.0	15.3	11.8	6.2	8.7	6
8 - 20 YEARS	25.0	21.6	20.0	21.6	15.9	11
OVER 20 YEARS	39.3	49.5	55.3	60.8	65.2	45
T O T A L	100.0	100.0	100.0	100.0	100.0	69

* THERE WERE 0 CASES IN WHICH INFORMATION WAS NOT AVAILABLE

REACTIVATIONS - LENGTH OF INACTIVE INTERVAL

Precise information on the interval between inactivity and reactivation of disease was available in all of the reactivated cases in 1981.

As can readily be seen from the opposite table, the percentage of cases reactivated after an interval of over 20 years seems to be rising steadily. It is a reflection of the fact that treatment of tuberculosis prior to 1951 (when Isoniazid became available) was, by present standards, inadequate. Consequently, if the original diagnosis of active tuberculosis was made before 1951, the risk of reactivation is high: for 65.2% of the reactivations in 1981 the period of inactivity was reported to be more than 20 years.

Rapid reactivations, two years and under from inactivity, are still being reported. When the inactive interval is under one year (none in 1981), the adequacy of treatment, or the accuracy of assessment of the "inactivity", should be questioned. With 7.2% reactivations occurring two years after having been classified as "inactive", these cases can only be considered as "treatment failures". To overcome this problem, it is imperative that active cases be followed up very closely to ensure that effective drugs are taken in the prescribed dose and for the prescribed period of time.

TABLE 6A

PREVIOUS X-RAY APPEARANCE - ONTARIO 1981

NEW ACTIVE CASES EXCLUDING PRIMARY AND PLEURISY TUBERCULOSIS

	TOTAL NEW ACTIVE	PREVIOUS X-RAY APPEARANCE OF INACTIVE TUBERCULOSIS 'REACTIVATION II'	
	NUMBER	NUMBER	PERCENT
MALES	375	11	2.9
FEMALES	294	13	4.4
TOTAL	669	24	3.6

THERE WERE 645 CASES WITH NO INFORMATION AS TO PREVIOUS X-RAYS
AND 0 CASES WHERE NO X-RAYS WERE TAKEN
AND 0 PREVIOUS X-RAYS NORMAL

PREVIOUS X-RAY APPEARANCE

In 1981, 3.6% of the new active cases were known to have prior x-ray abnormalities suggestive of previously undiagnosed respiratory tuberculous infection. Unfortunately, information on prior x-ray appearance was available in only 4.9% of the new post-primary and 0.6% of the new non-respiratory cases, so it is conceivable that this percentage should actually be higher.

TABLE 7

TUBERCULOSIS MORBIDITY AMONG CANADIAN AND FOREIGN-BORN

ACTIVE TUBERCULOSIS - ONTARIO 1981

GROUP	ACTIVE TUBERCULOSIS NUMBER OF CASES	PERCENT OF CASES	POPULATION AT RISK *	PERCENT OF POP.*	ESTIMATED RATE PER 100,000 1977	1978	1979	1980	1981
CANADIAN BORN ** (EXCLUDING N.A.INDIANS)	227	28.6	6,641,331	77.0	5.2	4.4	4.2	4.0	3.4
FOREIGN-BORN **	530	66.7	1,914,773	22.2	30.2	26.0	24.9	34.1	27.7
N.AMERICAN INDIANS	38	4.8	69,001	0.8	76.1	63.7	50.0	54.0	55.1
T O T A L	795	100.0	8,625,105***	100.0	11.3	9.2	9.2	11.1	9.2

* BASED ON 1971 CENSUS
** INCLUDES A PROPORTIONAL DISTRIBUTION OF 2 CASES IN WHICH COUNTRY OF BIRTH WAS NOT STATED
*** 1981 *Census* POPULATION

TUBERCULOSIS IN CANADIAN-BORN AND FOREIGN-BORN

Table 7 outlines the estimated case rates per 100,000 for these groups in the years 1977 to 1981, showing a 15.0% decrease from 1980 in the Canadian-born rate, a decrease of 19.0% in the Foreign-born and a 2.0% increase in the North American Indian rate.

	PERCENTAGE OF ACTIVE CASES				
	1977	1978	1979	1980	1981
Canadian-born (excluding Indians)	35.2	35.1	35.4	27.8	28.6
Foreign-born	59.4	59.6	60.2	68.3	66.7
North American Indians	5.4	5.3	4.4	3.9	4.8

Foreign-born, estimated to represent 22.2% of the population, contribute 66.7% of all the active cases of tuberculosis in Ontario (68.3% in 1980). This point should be emphasized to all physicians dealing with newcomers and their families.

TABLE 7A

SITE AND TYPE OF DISEASE AMONG CANADIAN AND FOREIGN-BORN

ACTIVE TUBERCULOSIS - ONTARIO 1981

DIAGNOSIS	CANADIAN BORN (EXCL.N.A.INDIANS)		N.AMERICAN INDIANS		FOREIGN-BORN		T O T A L *	
	NO.	%	NO.	%	NO.	%	NO.	%
POST-PRIMARY	164	31.1	30	5.7	333	63.2	527	100.0
1.FAR ADVANCED	26	41.9	5	8.1	31	50.0	62	100.0
2.MODERATELY ADVANCED	52	29.4	8	4.5	117	66.1	177	100.0
3.MINIMAL & EXTENT UNSPEC	86	29.9	17	5.9	185	64.2	288	100.0
PRIMARY	7	38.9	-	0.0	11	61.1	18	100.0
MILIARY	5	62.5	-	0.0	3	37.5	8	100.0
PLEURISY	12	31.6	1	2.6	25	65.8	38	100.0
OTHER RESPIRATORY	1	12.5	-	0.0	7	87.5	8	100.0
RESPIRATORY TOTAL	189	31.6	31	5.2	379	63.3	599	100.0
GENITO-URINARY	14	32.6	3	7.0	26	60.5	43	100.0
LYMPH GLAND	8	8.0	3	3.0	89	89.0	100	100.0
BONE AND JOINT	9	39.1	1	4.3	13	56.5	23	100.0
CENTRAL NERVOUS SYSTEM	1	16.7	-	0.0	5	83.3	6	100.0
ALIMENTARY	2	25.0	-	0.0	6	75.0	8	100.0
SKIN	1	11.1	-	0.0	8	88.9	9	100.0
OTHER ORGANS	2	40.0	-	0.0	3	60.0	5	100.0
NON-RESPIRATORY TOTAL	37	19.1	7	3.6	150	77.3	194	100.0
ALL CASES (GRAND TOTAL)	226	28.5	38	4.8	529	66.7	793	100.0

* EXCLUDES 2 CASES IN WHICH COUNTRY OF BIRTH IS UNKNOWN

SITE AND TYPE OF DISEASE AMONG CANADIAN AND FOREIGN-BORN

In considering the site and type of disease, according to the preceding categories, it is found that 31.6% of the respiratory cases were Canadian born, 63.3% were Foreign-born and 5.2% were North American Indians. Further refinement shows that of post-primary cases, 31.1% were Canadian-born, 63.2% Foreign-born and 5.7% North American Indians. In primary disease, the respective percentages were 38.9%, 61.1% and 0.0%.

The non-respiratory categories, for 1981, show Canadian-born accounting for 19.1% of the total cases, Foreign-born accounting for 77.3% and North American Indians accounting for 3.6%. Lymphadenitis occurred predominantly in the Foreign-born at 89.0%, Canadian-born 8.0% and North American Indians 3.0%. In genitourinary tuberculosis, Foreign-born accounted for 60.5% of the cases (from 78.3% in 1980), Canadian-born increased to 32.6% (from 20.0%) and North American Indians contributed the remaining 7.0% of the cases (increased from 1.7% in 1980).

TABLE 8

COUNTRY OF BIRTH AND YEAR OF ARRIVAL IN CANADA

FOREIGN-BORN CASES OF ACTIVE TUBERCULOSIS - ONTARIO 1981

COUNTRY OF BIRTH	YEAR OF ARRIVAL IN CANADA							TOTAL
	BEFORE 1957	57-61	62-66	67-71	72-76	77-81	YEAR UNKNOWN	
BRITISH ISLES	23	-	3	3	1	1	3	34
CHINA	3	-	3	4	20	39	1	70
CZECHOSLOVAKIA	2	1	-	-	-	-	1	4
FINLAND	3	1	-	-	-	-	-	4
GERMANY	6	2	1	1	-	-	1	11
GREECE	-	3	-	1	2	2	-	8
HUNGARY	3	-	-	1	-	1	1	6
INDIA & PAKISTAN	-	-	1	7	26	31	1	66
ITALY	6	9	9	2	1	2	2	31
JAPAN	-	-	-	-	-	-	-	-
OTHER ASIA	-	-	-	2	15	112	-	129
OTHER COUNTRIES	-	-	1	2	8	12	-	23
OTHER EUROPE	4	1	-	3	2	4	-	14
PHILIPPINES	-	-	2	7	9	23	-	41
POLAND	13	3	3	1	-	-	2	22
PORTUGAL	-	2	1	5	6	3	-	17
U.S.A.	1	-	-	-	1	3	-	5
U.S.S.R.	12	1	1	-	1	-	3	18
WEST INDIES	1	-	2	2	6	3	-	14
YUGOSLAVIA	7	-	1	1	1	1	1	12
TOTAL NUMBER	84	23	28	42	99	237	16	529
TOTAL PERCENT	15.9	4.3	5.3	7.9	18.7	44.8	3.0	100.0

YEAR OF ARRIVAL IN CANADA - FOREIGN-BORN

In all but 16 of the 529 cases of active disease in Foreign-born, the year of arrival in Canada was known, as per Table 8.

The greatest percentage of cases, 63.6%, occurred in persons arriving in Canada within the last 10 years: 44.8% having been in Canada five years or less. The remainder, 33.3%, accounted for persons whose residence in Ontario exceeded 10 years. (In 3% year of arrival in Canada was unknown).

17.6% of Portuguese cases had been in Canada five years of less, 52.9% 10 years or less, correlating with the increased immigration from that country in recent years.

306 cases were born in Asia (China, India, Pakistan, the Philippines, Vietnam, etc.). Of these 275 (89.9%) had come to Canada between 1972 and 1981, and 205 (67.0%) had been in Canada five years of less.

39 (37.1%) of the 105 cases among refugees from South-east Asia had come to Canada during 1981, 47 (44.8%) came during 1980, and the other 18.1% had arrived during the previous five years. The 39 represented 54.2% of the 72 cases from Asia who arrived during 1981.

The number of cases of active tuberculosis among South-east Asian refugees represents 13.2% of our total case load for 1981 as compared to 19.3% in 1980.

TABLE 9

METHOD OF DETECTION

ACTIVE TUBERCULOSIS - ONTARIO 1981

AGENCIES AND PROGRAMMES RESPONSIBLE FOR DETECTION	RESPIRATORY		NON-RESPIRATORY		TOTAL	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
PRIVATE PHYSICIANS	127	21.1	81	41.8	208	26.2
HOSPITALS	213	35.4	75	38.7	288	36.2
CHEST CLINICS	107	17.8	6	3.1	113	14.2
SURVEYS	5	0.8	-	-	5	0.6
OTHER	49	8.2	6	3.1	55	6.9
NO INFORMATION	100	16.6	26	13.4	126	15.8
TOTAL	601	100.0	194	100.0	795	100.0

METHOD OF DETECTION

When the majority of cases of tuberculosis were admitted to sanatoria, information regarding the method of detection was readily available through the discharge summary.

With the advent of ambulatory treatment it was hoped that outpatient treatment reports would provide an alternative; unfortunately, this did not follow. Therefore, both in accuracy and completeness, the collected data on methods of detection leave much to be desired.

No information was available for 15.8% of the 1981 cases (a slight increase from 1980 when this figure was 14.9%).

Private physicians and general hospitals together accounted for the diagnosis in 62.4% of the cases, 56.5% of the respiratory cases and 80.4% of the non-respiratory disease.

The figure 14.2% listed in Table 9 is not truly representative of the chest clinics' role in the detection of tuberculosis. Please see Management of Active Tuberculosis, (page 55).

TABLE 9A

METHOD OF DETECTION BY TYPE AND EXTENT OF DISEASE

ACTIVE RESPIRATORY TUBERCULOSIS - ONTARIO 1981

METHOD OF DETECTION	PERCENTAGE OF CASES					
	POST PRIMARY			PRIMARY	MILIARY	PLEURISY
	FAR ADV.	MOD. ADV.	MIN.& EXT. UNSPEC.			
PRIVATE PHYSICIANS AND HOSPITALS	67.7	58.2	49.1	44.4	87.5	82.1
CHEST CLINICS	21.0	17.5	18.0	50.0	-	5.1
SURVEYS	-	-	1.7	-	-	-
OTHER	3.2	6.8	12.1	-	-	-
NO INFORMATION	8.1	17.5	19.0	5.6	12.5	12.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 9B

REASON FOR DETECTION BY TYPE AND EXTENT OF DISEASE

ACTIVE RESPIRATORY TUBERCULOSIS - ONTARIO 1981

REASON FOR DETECTION	PERCENTAGE OF CASES					
	POST PRIMARY			PRIMARY	MILIARY	PLEURISY
	FAR ADV.	MOD. ADV.	MIN.& EXT. UNSPEC.			
SYMPTOMS	74.2	62.7	47.1	22.2	62.5	74.4
ROUTINE	6.5	18.6	23.5	22.2	-	5.1
CONTACT	-	1.1	7.3	44.4	-	-
NOT STATED	19.4	17.5	22.1	11.1	37.5	20.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

REASON FOR DETECTION, BY TYPE AND EXTENT OF DISEASE

The relationships between the type and extent of disease and the reasons for the methods of detection are illustrated in Tables 9A and 9B for the various types of respiratory tuberculosis.

In general, advanced post-primary disease was diagnosed, because of symptoms, mainly by private physicians and/or in general hospitals, as were 82.1% of the pleural effusions and 87.5% of miliary tuberculosis.

Increasing difficulty has been encountered in recent years in obtaining accurate and complete information on both the method of and reason for detection. The figures in these tables, therefore, can only be considered as rough indicators.

TABLE 10

MORBIDITY RATES FOR PROVINCE AND RATE BY

REGIONS, COUNTIES AND DISTRICTS PER 100,000

ACTIVE TUBERCULOSIS - ONTARIO 1977-81

NUMBER OF CASES

PROVINCE OF ONTARIO	1977	1978	1979	1980	1981 *	AVERAGE ANNUAL RATE FOR 5 YEARS
CASES	944	817	779	949	795	
POPULATION (THOUSANDS)	8373.5	8443.8	8503.3	8570.4	8625.1	
RATE	11.3	9.7	9.2	11.1	9.2	10.1

****

REGION,COUNTY,DISTRICT						1981 * POPULATION	1981 RATE	
EASTERN								
DUNDAS	2	-	-	2	3	18,946	15.8	7.4
FRONTENAC	7	4	7	5	3	108,133	2.8	4.6
GLENGARRY	4	1	-	1	2	20,254	9.9	7.9
GRENVILLE	1	-	1	-	-	27,176	-	1.5
HASTINGS	10	5	9	4	5	106,883	4.7	6.2
LANARK	2	1	-	3	-	45,676	-	2.7
LEEDS	4	2	2	-	-	53,765	-	3.0
LENNOX AND ADDINGTON	2	-	3	2	2	33,040	6.1	5.5
OTTAWA-CARLETON	44	33	32	36	49	546,849	9.0	7.2
PRESCOTT	4	1	5	2	-	30,365	-	8.0
PRINCE EDWARD	-	1	-	-	-	22,336	-	0.9
RENFREW	1	4	4	4	14	87,484	16.0	6.2
RUSSELL	2	2	2	1	-	22,412	-	6.4
STORMONT	3	5	2	2	1	61,927	1.6	4.2
TOTAL	86	59	67	62	79	1,185,246	6.7	6.0
CENTRAL EAST								
DURHAM	9	16	10	7	12	283,639	4.2	4.0
HALIBURTON	2	-	-	1	-	11,361	-	5.6
MUSKOKA	1	1	-	1	1	38,370	2.6	2.1
NORTHUMBERLAND	2	2	4	1	1	64,966	1.5	3.1
PEEL	37	32	22	32	41	490,731	8.4	7.4
PETERBOROUGH	8	2	3	3	6	102,452	5.9	4.4
SIMCOE	11	8	6	11	10	225,071	4.4	4.2
VICTORIA	1	2	2	4	1	47,854	2.1	4.3
YORK(EXCLMETRO TORONTO)	13	21	6	8	6	252,053	2.4	4.7
YORK-METRO TORONTO ONLY	435	389	356	351	362	2,137,395	16.9	17.7
TOTAL	519	473	409	419	440	3,653,892	12.0	12.7

TABLE 10

MORBIDITY RATES FOR PROVINCE AND RATE BY

REGIONS, COUNTIES AND DISTRICTS PER 100,000

ACTIVE TUBERCULOSIS - ONTARIO 1977-81

NUMBER OF CASES

REGION,COUNTY,DISTRICT	1977	1978	1979	1980	1981	1981 * POPULATION	AVERAGE ANNUAL RATE FOR 5 YEARS 1981 RATE	
CENTRAL WEST								
BRANT	4	7	7	5	5	104,427	4.8	5.5
DUFFERIN	1	1	2	2	1	31,145	3.2	4.5
HALDIMAND-NORFOLK	8	1	1	4	1	89,456	1.1	3.3
HALTON	15	11	9	12	12	253,883	4.7	4.8
HAMILTON-WENTWORTH	36	38	26	35	35	411,445	8.5	8.2
NIAGARA	30	21	19	35	19	368,288	5.2	6.7
WATERLOO	20	17	22	16	19	305,496	6.2	6.2
WELLINGTON	5	4	6	7	9	129,432	7.0	4.8
TOTAL	119	100	92	116	101	1,693,572	6.0	6.3
SOUTHWESTERN								
BRUCE	9	5	2	3	1	60,020	1.7	6.8
ELGIN	4	3	2	4	6	69,707	8.6	5.5
ESSEX	33	29	26	20	32	312,476	10.2	8.9
GREY	7	-	3	4	2	73,824	2.7	4.4
HURON	5	-	1	1	2	56,127	3.6	3.2
KENT	7	10	6	4	10	107,022	9.3	6.9
LAMBTON	8	11	12	10	8	123,445	6.5	7.9
MIDDLESEX	18	14	21	15	20	318,184	6.3	5.5
OXFORD	4	3	4	4	1	85,920	1.2	3.8
PERTH	1	6	1	2	-	66,096	-	3.0
TOTAL	96	81	78	67	82	1,272,821	6.4	6.3
NORTHEASTERN								
ALGOMA	7	4	10	21	8	133,553	6.0	7.8
COCHRANE	14	14	13	17	12	96,875	12.4	14.6
MANITOULIN	2	1	1	2	3	11,001	27.3	16.4
NIPISSING	4	8	4	6	4	80,268	5.0	6.5
PARRY SOUND	2	2	2	2	2	33,528	6.0	6.1
SUDBURY	11	13	14	8	6	186,847	3.2	5.5
TIMISKAMING	8	2	11	5	6	41,288	14.5	15.4
TOTAL	48	44	55	61	41	583,360	7.0	8.6

TABLE 10

MORBIDITY RATES FOR PROVINCE AND RATE BY

REGIONS, COUNTIES AND DISTRICTS PER 100,000

ACTIVE TUBERCULOSIS - ONTARIO 1977-81

NUMBER OF CASES

REGION,COUNTY,DISTRICT	1977	1978	1979	1980	1981	1981 * POPULATION	AVERAGE ANNUAL RATE FOR 5 YEARS 1981 RATE	
NORTHWESTERN								
KENORA**	26	24	13	19	15	59,421	25.2	33.2
RAINY RIVER	16	3	3	4	5	22,798	21.9	26.0
THUNDER BAY	24	20	11	15	25	153,997	16.2	12.6
TOTAL	66	47	27	38	45	236,216	19.1	19.1

* ESTIMATED POPULATION FOR 1981 BASED ON 1971 CENSUS

** KENORA INCLUDES THE COUNTY OF KENORA AND DISTRICT OF PATRICIA

THERE WERE 7 CASES WHERE THERE WAS NO OFFICIAL RESIDENCE IN ONTARIO

MORBIDITY RATES BY REGIONS, COUNTIES AND DISTRICTS

Variants in tuberculosis morbidity in the six regions of Ontario are shown in Table 10.

Northwestern Ontario maintained the highest annual rate, 19.1/100,000, followed by the Central East Region with a rate of 12.0/100,000.

North American Indians again influenced the morbidity rates in the two Northern regions - 31 (81.6%) of the 38 cases in Indians living in those regions - 24 residing in Northwestern Ontario and accounting for 53.3% of the cases in this region.

In 10 of the 52 counties and regional municipalities the annual rates exceeded the five-year average annual rate.

The rates for Eastern (6.7), Central West (6.0), Southwestern Ontario (6.4) and Northeastern Ontario (7.0) were well below the 1981 provincial average.

28 of the 52 counties and regional municipalities had five or fewer cases. Of these, eight counties - Grenville, Haliburton, Lanark, Leeds, Perth, Prescott, Prince Edward and Russell - did not report any active cases during 1981.

These figures include Southeast Asian refugees, although their residence was not yet firmly established.

TABLE 11

ACTIVE TUBERCULOSIS IN THE MAJOR ONTARIO CITIES

ACTIVE CASES AND RATES PER 100,000
1977 - 1981

CITIES OF OVER 100,000 POPULATION *	1977		1978		1979		1980		1981	
	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
METRO TORONTO (2,137,395)	435	20.3	389	18.3	356	16.7	351	16.4	362	16.9
CITY OF TORONTO (599,217)	205	31.3	180	28.0	165	25.9	154	24.5	152	25.4
NORTH YORK (559,521)	-	-	-	-	66	11.8**	85	15.2	64	11.4
MISSISSAUGA (315,056)	22	8.3	24	8.8	14	5.0	21	7.1	32	10.2
HAMILTON (306,434)	34	10.9	32	10.4	22	7.0	31	10.1	32	10.4
OTTAWA (295,163)	37	12.0	27	9.0	23	7.6	28	9.3	40	13.6
LONDON (254,280)	17	6.8	12	4.7	19	7.3	10	3.8	16	6.3
WINDSOR (192,083)	29	14.8	23	11.7	25	12.5	14	7.1	26	13.5
SUDBURY (186,847)	-	-	-	-	-	-	-	-	4	2.1**
BRAMPTON (149,030)	-	-	-	-	7	5.6**	11	7.9	7	4.7
KITCHENER (139,734)	14	10.4	4	3.0	8	5.7	10	7.2	9	6.4
ST. CATHARINES (124,018)	10	8.0	7	5.6	8	6.4	16	13.0	6	4.8
OSHAWA (117,519)	3	2.7	5	4.4	4	3.5	2	1.7	8	6.8
BURLINGTON (114,853)	5	4.8	3	2.8	7	6.2	5	4.4	5	4.4
THUNDER BAY (112,486)	20	17.9	11	9.9	7	6.2	10	8.9	20	17.8

* 1981 ESTIMATED POPULATION FOR EACH CITY IS SHOWN IN BRACKETS
** EXCEEDED 100,000 POPULATION IN YEAR OF FIRST ENTRY IN TABLE

TUBERCULOSIS IN THE MAJOR CITIES OF ONTARIO

There are 14 cities in Ontario with populations over 100,000. Table 11 demonstrates the incidence of tuberculosis over the past five years in these cities.

Tuberculosis is recognized, in developed countries, as an urban problem. This is especially true in Ontario and is compounded by the fact that immigrants are attracted to large cities where employment possibilities are greatest and where there are ethnically similar groups of appreciable size.

Metropolitan Toronto (including the City of Toronto and the City of North York) and the other 12 cities accounted for 567 (71.3%) of the total active cases registered in Ontario in 1981. From these figures the overall morbidity rate in the large urban areas is calculated as 12.8/100,000, compared with 5.5/100,000 in the remainder of the Province. Metropolitan Toronto, with 24.8% of the population of Ontario, accounted for 45.5% of the registered cases; the City of Toronto with 6.9% of the total population of Ontario, yielded 19.1% of the total cases.

The City of Toronto continues to experience the highest morbidity rate of the 14 cities identified, 25.4/100,000, an increase from 1980 when it was 24.5/100,000.

Thunder Bay, with a rate of 17.8/100,000, comes second highest; Ottawa is third with 13.6/100,000; followed closely by Windsor's 13.5/100,000. North York and St. Catharines, prominent in the 1980 figures, have dropped to fifth and 11th places respectively.

TABLE 11A

ACTIVE TUBERCULOSIS IN METROPOLITAN TORONTO - 1981

	CASES	POPULATION*	RATE PER 100,000
METRO TORONTO	362	2,137,395	16.9
CITY OF TORONTO	152	599,217	25.4
EAST YORK	32	101,974	31.4
ETOBICOKE	41	298,713	13.7
NORTH YORK	64	559,521	11.4
SCARBOROUGH	50	443,353	11.3
YORK	23	134,617	17.1

* ESTIMATED 1981 POPULATION

TABLE 11B

TUBERCULOSIS IN METROPOLITAN TORONTO
ACTIVE CASE RATES PER 100,000
1977 - 1981

	1977	1978	1979	1980	1981
East York	17.8	18.6	18.8	15.0	31.4
Etobicoke	15.8	8.2	10.0	9.3	13.7
North York	16.1	14.9	11.8	15.2	11.4
Scarborough	14.2	14.1	12.5	12.2	11.3
Toronto	31.3	28.0	25.9	24.5	25.4
York	14.9	19.9	20.0	13.6	17.1

TABLE 12

ACTIVE TUBERCULOSIS IN PRINCIPAL CITIES OF ONTARIO 1977 - 1981

CITIES	1981		AVERAGE ANNUAL RATE FOR PREVIOUS 4 YEARS *
	CASES	RATE PER 100,000 **	1977 - 1980 RATE PER 100,000 **
CITY OF TORONTO	152	25.4	27.5
THUNDER BAY	20	17.8	10.7
METRO TORONTO	362	16.9	17.9
OTTAWA	40	13.6	9.5
WINDSOR	26	13.5	11.5
TIMMINS	6	13.0	12.4
WATERLOO	6	12.1	31.5
SARNIA	6	11.8	12.5
NORTH YORK	64	11.4	29.0
GUELPH	8	11.2	24.6
HAMILTON	32	10.4	9.6
MISSISSAUGA	32	10.2	7.3
NEPEAN	7	8.3	-
PETERBOROUGH	5	8.2	5.0
SAULT STE. MARIE	6	7.3	7.7
NIAGARA FALLS	5	7.0	26.8
OSHAWA	8	6.8	3.1
KITCHENER	9	6.4	6.6
LONDON	16	6.3	5.7
KINGSTON	3	5.7	7.8
ST. CATHARINES	6	4.8	8.2
BRAMPTON	7	4.7	14.3
BURLINGTON	5	4.4	4.6
BRANTFORD	3	4.0	7.2
CAMBRIDGE	3	3.9	25.1
NORTH BAY	2	3.9	4.9
CORNWALL	1	2.2	4.9
SUDBURY	4	2.1	7.7
GLOUCESTER	-	-	-

* OR LESS ACCORDING TO THE NUMBER OF YEARS THE CITY HAS APPEARED IN THIS REPORT.
** BASED ON 1981 ESTIMATED POPULATION

TUBERCULOSIS IN PRINCIPAL CITIES OF ONTARIO

Table 12 compares the morbidity rates in 14 other major cities with the rates for cities defined in Table 11.

The City of Toronto continues to have the highest morbidity in the Province.

The 27 identified cities accounted for 79.0% (628) of the total Ontario cases in 1981, an increase of 31.7% from 60.0% in 1980.

Again, these figures include Southeast Asian Refugees, although their residence was perhaps not yet firmly established.

TABLE 13

NOTIFIED CASES BY COUNTIES

ACTIVE TUBERCULOSIS - ONTARIO 1977 - 81

COUNTY	TOTAL CASES 1981	NOTIFIED NO. 1981	NOTIFIED % 1981	PERCENT NOTIFIED 1977-1981
ALGOMA	8	7	87.5	84.0
BRANT	5	3	60.0	67.9
BRUCE	1	1	100.0	85.0
COCHRANE	12	7	58.3	62.9
DUFFERIN	1	1	100.0	71.4
DUNDAS	3	2	66.7	85.7
DURHAM	12	11	91.7	90.7
ELGIN	6	4	66.7	68.4
ESSEX	32	31	96.9	92.1
FRONTENAC	3	3	100.0	76.9
GLENGARRY	2	2	100.0	100.0
GRENVILLE	-	-	-	100.0
GREY	2	1	50.0	81.3
HALDIMAND-NORFOLK	1	-	-	73.3
HALIBURTON	-	-	-	66.7
HALTON	12	7	58.3	69.5
HAMILTON-WENTWORTH	35	33	94.3	84.7
HASTINGS	5	5	100.0	87.9
HURON	2	2	100.0	66.7
KENORA*	15	13	86.7	74.2
KENT	10	10	100.0	91.9
LAMBTON	8	6	75.0	79.6
LANARK	-	-	-	33.3
LEEDS	-	-	-	75.0
LENNOX AND ADDINGTON	2	2	100.0	66.7
MANITOULIN	3	2	66.7	66.7
MIDDLESEX	20	16	80.0	84.1
MUSKOKA	1	1	100.0	75.0
NIAGARA	19	17	89.5	71.8
NIPISSING	4	3	75.0	30.8
NORTHUMBERLAND	1	1	100.0	60.0
OTTAWA-CARLETON	49	43	87.8	92.8
OXFORD	1	1	100.0	75.0
PARRY SOUND	2	2	100.0	100.0
PEEL	41	38	92.7	87.2
PERTH	-	-	-	80.0
PETERBOROUGH	6	5	83.3	86.4
PRESCOTT	-	-	-	83.3
PRINCE EDWARD	-	-	-	100.0
RAINY RIVER	5	5	100.0	100.0
RENFREW	14	12	85.7	77.8
RUSSELL	-	-	-	71.4
SIMCOE	10	7	70.0	65.2
STORMONT	1	-	-	76.9
SUDBURY	6	5	83.3	75.0
THUNDER BAY	25	23	92.0	78.9
TIMISKAMING	6	4	66.7	90.6
VICTORIA	1	-	-	50.0
WATERLOO	19	14	73.7	77.7
WELLINGTON	9	7	77.8	67.7
YORK(EXCLMETRO TORONTO)	6	2	33.3	59.3
YORK-METRO TORONTO ONLY	362	319	88.1	88.3
NO FIXED ADDRESS	7	5	71.4	67.5
TOTAL	795	683	85.9	79.3

* KENORA INCLUDES THE COUNTY OF KENORA AND DISTRICT OF PATRICIA

NOTIFICATION OF ACTIVE TUBERCULOSIS

Table 13 provides data on the number and percentage of notified cases, broken down by county, in 1981 alone, and in the five-year period, 1977 - 1981. Notified cases include those for whom the appropriate format was submitted following communication with the Medical Officer of Health. The overall percentage of cases notified in such a manner was 85.9% in 1981 (an increase of 27.3% from 1980.)

Incidentally, the figures of notified cases against each county shown in Table 13 do include Southeast Asian refugees, who were treated as a separate group in 1980.

TABLE 14

ACTIVE TUBERCULOSIS BY OCCUPATION IN ONTARIO 1981

OCCUPATION	M	F
ADVERTISING AGENTS	-	-
AIR, RAIL AND ROAD TRANSPORT WORKERS	6	-
ARCHITECTS, DRAUGHTSPERSONS AND SURVEYORS	-	-
ARMED FORCES	12	-
AUTOMOTIVE, GARAGE AND SERVICE STATION WORKERS	6	-
BARBERS AND HAIRDRESSERS	1	1
BUTCHERS AND HUNTERS	3	-
CARPENTERS AND CABINET MAKERS	5	-
CHILDREN	10	4
CHIROPODISTS AND PODIATRISTS	-	-
CLERGY, RELIGIOUS AND SOCIAL WORKERS	-	2
CONSTRUCTION WORKERS	8	-
DIETICIANS	-	-
ENGINEERS - CHEMICAL, CIVIL, ELECTRICAL AND MECHANICAL	7	-
ENTERTAINMENT INDUSTRY PERSONNEL, ARTISTES AND ATHLETES	4	1
FACTORY WORKERS, TEXTILE WORKERS AND UPHOLSTERERS	14	14
FARMING, NURSERY AND ANIMAL CARE WORKERS	4	-
FORESTRY AND LUMBER WORKERS	2	-
FUNERAL DIRECTORS AND STAFF	-	-
GARMENT MAKERS AND JEWELLERS	3	1
GAS AND HYDRO WORKERS	-	-
HOUSEKEEPERS, CLEANERS AND JANITORS	4	9
HOUSEWIVES	-	85
INDUSTRIAL WORKERS	2	-
INVESTMENT, INSURANCE AND REAL ESTATE TRADERS	1	-
JUDGES, LAWYERS, COURT OFFICERS AND ACCOUNTANTS	1	1
LAUNDERERS AND DRY CLEANERS	1	1
MAINTENANCE, ELECTRICIANS AND PLUMBERS	8	1
MANAGERS, SUPERVISORS AND INSPECTORS	15	-
MECHANICS AND REPAIRERS	6	-
METAL WORKERS	8	-
MINERS	2	-
NUCLEAR ENERGY WORKERS	-	-
NURSES, AIDES AND ORDERLIES	1	10
OFFICE AND ELECTRONIC DATA PROCESSING STAFF	5	34
PACKERS, STOCKKEEPERS AND SHIPPERS	3	2
PAINTERS, DECORATORS AND PLASTERERS	5	-
PHYSICIANS, DENTISTS, OPTICIANS AND PHARMACISTS	1	-
POLICE AND FIREFIGHTERS	3	1
POSTAL EMPLOYEES	1	1
PRINTERS AND BOOKBINDERS	-	-
RESTAURANT WORKERS, BAKERS AND CONFECTIONERS	12	6
RETIRED	91	60
SCIENTISTS AND MATHEMATICIANS	-	-
SHOEMAKING AND LEATHER WORKERS, FURRIERS	1	-
SHOPKEEPERS, BUYERS AND SALES STAFF, RETAIL AND WHOLESALE	7	4
STREET SWEEPERS AND LABOURERS	16	3
STUDENTS	40	20
TEACHERS AND LIBRARIANS	-	5
TECHNICIANS AND ENGINEERS, HEALTH CARE	1	-
TELECOMMUNICATIONS WORKERS	1	-
UNEMPLOYED	61	14
WRITERS, ARTISTS, DESIGNERS AND PHOTOGRAPHERS	2	-
OTHERS	11	2
NOT STATED	57	61
	-	-
	-	-
	-	-
	-	-
	-	-
	-	-
TOTAL	452	343

OCCUPATION OF PERSONS WITH ACTIVE DISEASE

The occupations of the 795 active cases are outlined in Table 14.

There were 385 or 48.4% of the total cases who were not counted as part of the labour force. Comprising this group were: 151 retired, 85 housewives, 75 unemployed, 60 students and 14 pre-school children.

Foodhandlers, barbers and hairdressers accounted for 18 and two cases respectively.

TABLE 14A

ACTIVE TUBERCULOSIS BY OCCUPATION

HEALTH CARE PERSONNEL

OCCUPATION	1980	1981
Nurses (student, graduate and practical)	22	10
Physicians, Dentists and Opticians	3	1
Technicians (x-ray or laboratory only)	5	1
Orderlies and Porters	1	1
Housekeeping and Cleaners	1	-
Laundry workers	1	-
Clerical staff	3	4
Maintenance, hospital central supply	-	1
Kitchen help	2	-
TOTAL	38	18

HEALTH CARE PERSONNEL

The increased risk of tuberculosis occurring in health care workers has been recognized for some years. Guidelines for the Prevention of Tuberculosis Transmission in Hospitals in Ontario were published in 1980.*

In 1981 there was an encouraging 52.6% decrease in the incidence of tuberculosis in Health Care Personnel as compared with 1980 (18 cases in 1981 compared with 38 in 1980.)

* Published by the Ontario Lung Association Ontario Thoracic Society 1980.

TABLE 15

DEATHS ATTRIBUTED TO TUBERCULOSIS

ONTARIO - 1981

Age Group	No. With Active Tuberculosis: New or Reactivated Tuberculosis									No. with Inactive Tuberculosis			Total with Tuberculosis (Rate per 100,000*)					
			Continuing Active in 1981		Total No. Active (Rate per 100,000*)													
	M.	F.	M.	F.	M.	-	F.	-	T.	-	M.	F.	T.	M.	-	F.	-	T.	-
0 - 9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10 - 24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25 - 34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35 - 44	-	-	1	-	1	(0.2)	-	-	1	(0.1)	-	-	-	1	(0.2)	-	-	1	(0.1)
45 - 54	1	-	1	-	2	(0.4)	-	-	2	(0.2)	3	-	3	5	(1.1)	-	-	5	(0.5)
55 - 64	2	1	1	-	3	(0.8)	1	(0.2)	4	(0.5)	2	-	2	5	(1.3)	1	(0.2)	6	(0.7)
65 - 74	4	2	1	-	5	(2.1)	2	(0.7)	7	(1.3)	4	2	6	9	(3.7)	4	(1.4)	13	(2.4)
75+	8	6	4	-	12	(10.0)	6	(2.8)	18	(5.4)	6	2	8	18	(15.0)	8	(3.8)	26	(7.8)
TOTAL	15	9	8	-	23	(0.5)	9	(0.2)	32	(0.4)	15	4	19	38	(0.9)	13	(0.3)	51	(0.6)

*Based on population figures from 1981 Census (See Table 1)

TUBERCULOSIS MORTALITY 1981

The office of the Registrar General notified the Chest Disease Service of all deaths reported as attributed to tuberculosis. These cases have been studied and where tuberculosis was not considered to be a factor contributing to death, the cases were not included in the figures in Table 15.

51 deaths during 1981 were attributed to tuberculosis, giving a mortality rate of 0.6 per 100,000. 32 of these had active tuberculosis; 20 being new cases (0.23 per 100,000), 8 continuing active and 4 reactivations. 19 deaths were attributed to inactive tuberculosis.

In addition, 39 cases were reported with active tuberculosis which, on further study, was not considered to be a factor causing death. Of these, 15 were new active cases diagnosed in 1981, 12 were continuing active, and 12 were diagnosed post mortem. A further 26 cases with inactive tuberculosis died from other causes.

FIGURE 2

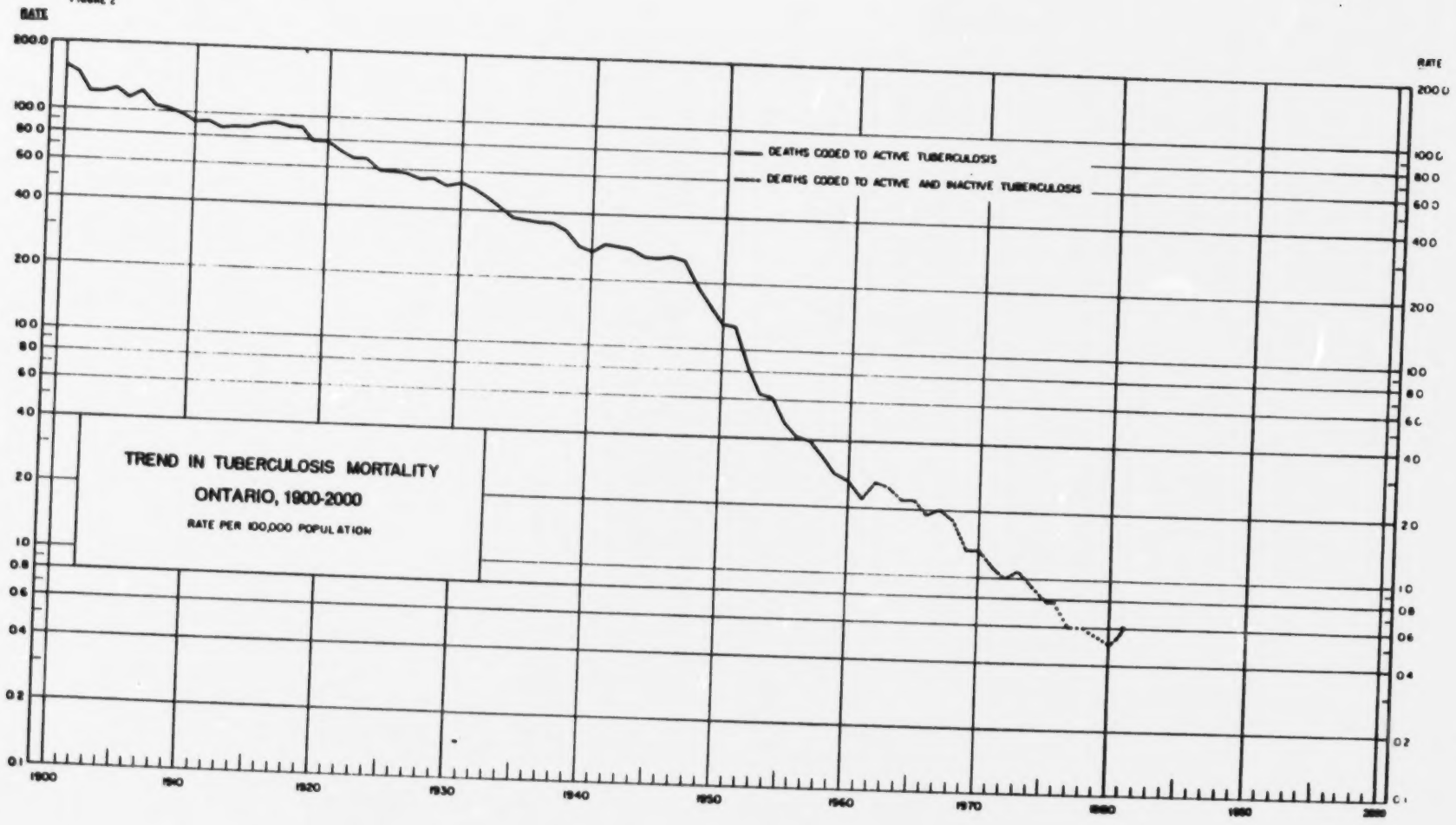
RATE
800.0
100.0
80.0
60.0
40.0
20.0
10.0
8.0
6.0
4.0
2.0
1.0
0.8
0.6
0.4
0.2
0.1
RATE
2000
1000
800
600
400
200
100
80
60
40
20
10
08
06
04
02
01
DEATHS CODED TO ACTIVE TUBERCULOSIS
DEATHS CODED TO ACTIVE AND INACTIVE TUBERCULOSIS
TREND IN TUBERCULOSIS MORTALITY
ONTARIO, 1900-2000
RATE PER 100,000 POPULATION
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000

TABLE 16

INITIAL MANAGEMENT OF TUBERCULOSIS ACTIVE CASES - ONTARIO 1981

		NUMBER	PERCENTAGE
ADMITTED TO HOSPITALS			
- DURING 1981		311	
- BEFORE MAY 1982		-	
- IN SANATORIUM OUTSIDE ONTARIO		-	
	SUBTOTAL	311	39.1
NOT ADMITTED TO HOSPITAL		484	60.9
	TOTAL	795	100.0

MANAGEMENT OF THE 484 CASES NOT INITIALLY ADMITTED TO HOSPITAL

ON DRUG TREATMENT			
- PRIVATE PHYSICIAN		104	
- PROVINCIAL CHEST CLINIC		267	
- GENERAL HOSPITAL CHEST CLINIC		68	
	SUBTOTAL	439	90.7
TREATMENT NOT KNOWN			
- UNDER SUPERVISION		15	
- MANAGEMENT UNCERTAIN		2	
- UNABLE TO TRACE		1	
	SUBTOTAL	18	3.7
OTHERS			
- DIED OR LEFT ONTARIO		27	5.6
	TOTAL	484	100.0

MANAGEMENT OF ACTIVE TUBERCULOSIS

Of the 795 cases of active tuberculosis for 1981, 311 started their treatment as inpatients of general hospitals or hospitals with tuberculosis units. This figure represented 39.1% of the total case load.

Table 16 also includes the initial management of the 484 cases not admitted to hospitals. Treatment details could not be obtained in 3.7% of those cases. However, 90.7% of outpatients were known to have been started on chemotherapy.

Provincial Chest Clinics were involved in the initial treatment of 33.6% of all cases, private physicians' care covered 13.1% and general hospital chest clinics 8.6%.

TABLE 16A

PERCENTAGE OF ALL CASES

ON WHOM TREATMENT WAS INITIATED

YEAR	INPATIENTS IN HOSPITALS	AT CHEST CLINICS (PROVINCIAL AND HOSPITAL O.P.D.)
	%	%
1977	49.2	33.7
1978	50.6	31.6
1979	47.2	34.9
1980	38.4	45.9
1981	39.1	42.1

In addition to the 267 cases listed in Table 16, 397 cases received treatment in Provincial Chest Clinics subsequent to initial management by other agencies. Thus the total case load of Provincial Chest Clinics amounted to 664 (83.5%). The corresponding figures for 1980 were 684 cases out of 949 (72.1%). The 1981 case load therefore showed an increase of 15.5% over 1980.

TABLE 17

CHEMOTHERAPY IN ONTARIO SINCE 1963

OUTPATIENTS

YEAR	TOTAL ON TREATMENT	TOTAL ON PREVENTIVE CHEMOTHERAPY
1963/64 (15 months)	2,834	700
1965	2,936	1,076
1966*	-	-
1967	3,266	1,398
1968	3,355	2,115
1969	3,611	7,111
1970	3,368	9,414
1971	2,980	10,789
1972	3,082	11,354
1973	3,054	10,909
1974	3,038	10,412
1975	3,033	7,768
1976	2,771	6,499
1977	2,571	6,333
1978	1,961	3,961
1979	1,532	3,773
1980	1,519	4,207
1981	1,679	4,421

* FIGURES NOT AVAILABLE

OUTPATIENT TREATMENT AND PREVENTIVE CHEMOTHERAPY

TREATMENT

During 1981, 1679 outpatients received treatment for active disease; of these, 44.1% (743) were started on drugs in 1981.

Provincial Chest Clinics were responsible for 53.0% (890) of these cases. Hospital chest clinics accounted for 23.5% (395) and private physicians for the remaining 23.5% (394).

PREVENTIVE CHEMOTHERAPY

During 1981 there were 4,421 individuals on preventive chemotherapy, of which 50.2% (2,220) were started on drugs in 1981.

Provincial Chest Clinics were actively involved in this programme, supervising 73.3% (3,242) of these cases. The remaining patients were divided between outpatient chest clinics in general hospitals or Hospitals for Chest Disease 7.2% (320), and private physicians in the Metropolitan Toronto area 19.4% (859).

APPENDIX I

Two proven cases of tuberculosis due to M.bovis were reported in 1981. Both were females - aged 61 and 71. The 61 year old patient was born in the United Kingdom. and had tuberculous lymphadenitis: the disease had reactivated. The 71 year old patient - born in Italy - had new active tuberculous endometritis.